CLAIMS:

1. A method of regulated expression of a heterologous gene in cells of the germline of *C. elegans* comprising the steps of:
   a. inserting a transgene construct into the *C. elegans*, wherein the construct comprises the heterologous gene operably linked to a promoter and a 3' untranslated region of a gene that is expressed in the *C. elegans* germline, wherein the promoter is an inducible promoter or a germline-specific promoter; and
   b. expressing the heterologous gene.
2. The method of Claim 1, wherein the promoter is inducible.
3. The method of Claim 2, wherein the promoter comprises a heat-shock promoter.
4. The method of Claim 2, wherein the promoter comprises a tetracycline-regulated promoter.
5. The method of Claim 1, wherein the construct is substantially free of bacterial plasmid sequences.
6. The method of Claim 1, wherein the construct is substantially free of repeated DNA sequences.
7. The method of Claim 1, wherein the 3' untranslated region comprises a *glh-2* 3' untranslated region.
8. The method of Claim 1, wherein the promoter comprises a *glh-2* promoter.
9. A transgene construct for expression in *C. elegans* comprising a heterologous gene operably linked to a promoter and a 3' untranslated region of a gene that is expressed in the *C. elegans* germline, wherein the promoter is an inducible promoter or a germline-specific promoter.
10. The transgene construct of Claim 9, wherein the promoter is inducible.
11. The transgene construct of Claim 10, wherein the promoter comprises a heat-shock promoter.
12. The transgene construct of Claim 10, wherein the promoter comprises a tetracycline-regulated promoter.
13. The transgene construct of Claim 9, wherein the construct is substantially free of bacterial plasmid sequences.
14. The transgene construct of Claim 9, wherein the construct is substantially free of repeated DNA sequences.

15. The transgene construct of Claim 9, wherein the 3' untranslated region comprises a *glh-2* 3' untranslated region.

16. The transgene construct of Claim 15, wherein the promoter comprises a heat-shock promoter.

17. The transgene construct of Claim 9, wherein the promoter comprises a *glh-2* promoter.

18. The transgene construct of Claim 9, wherein the heterologous gene is a transposase.

19. The transgene construct of Claim 9, wherein the heterologous gene is a TC3A transposase gene.

20. A method of transposon-mediated mutagenesis in a *C. elegans* genome, comprising the steps of:

a. introducing a transgene construct into the *C. elegans* genome, wherein the construct comprises a transposase gene which is operably linked to a regulable expression control element and a 3' untranslated region of a gene that is expressed in the *C. elegans* germline; and

b. expressing the transposase gene, such that a transposon in the *C. elegans* genome transposes, causing a mutation.

21. The method of Claim 20, wherein the transposons comprise endogenous transposons.

22. The method of Claim 21, wherein the transposons comprise Tc3 transposons.

23. The method of Claim 20, wherein the transposase gene is a TC3A transposase gene.

24. The method of Claim 22, wherein the transposase gene is a TC3A transposase gene.

25. The method of Claim 21, wherein the regulable expression control element is an inducible promoter.

26. The method of Claim 26, wherein the promoter comprises a heat-shock promoter.

27. The method of Claim 25, wherein the promoter comprises a tetracycline-regulated promoter.

28. The method of Claim 20, wherein the construct is substantially free of bacterial plasmid DNA sequences.

29. The method of Claim 20, wherein the construct is substantially free of repeated

DNA sequences.

30. The method of Claim 20, wherein the 3' untranslated region comprises a *glh-2* 3' untranslated region.

31. The method of Claim 30, wherein the regulable expression control element comprises a heat-shock promoter.

32. The method of Claim 30, wherein the regulable expression control element comprises a *glh-2* promoter.

33. The method of Claim 20, further comprising introduction of one or more additional copies of an endogenous transposon into the *C. elegans* germline.

34. The method of Claim 33, wherein the endogenous transposon is a Tc3 transposon.

35. The method of Claim 20, wherein the transposons comprise heterologous transposons.

36. The method of Claim 35, wherein the heterologous transposons are introduced into the *C. elegans* genome.

37. The method of Claim 35, wherein the transposons comprise *Mos 1* transposons.

38. The method of Claim 35, wherein the transposase gene comprises restriction sites 5' of the start codon, restriction sites 5' of the stop codon, and an artificial intron in the transposase gene open reading frame.

39. The method of Claim 35, wherein the regulable expression control element is an inducible promoter.

40. The method of Claim 39, wherein the promoter comprises a heat-shock promoter.

41. The method of Claim 39, wherein the promoter comprises a tetracycline-regulated promoter.

42. The method of Claim 35, wherein the construct is substantially free of bacterial plasmid DNA sequences.

43. The method of Claim 35, wherein the construct is substantially free of repeated DNA sequences.

44. The method of Claim 35, wherein the 3' untranslated region comprises a *glh-2* 3' untranslated region.

45. The method of Claim 44, wherein the regulable expression control element comprises a heat-shock promoter.

46. The method of Claim 44, wherein the regulable expression control element

comprises a *glh-2* promoter.

47. A method of introducing a heterologous DNA sequence into a *C. elegans* chromosome comprising the steps of:

a. introducing a transposon into the *C. elegans*, wherein the transposon comprises the heterologous DNA sequence;

b. introducing a transgene construct into the *C. elegans*, wherein the construct comprises a transposase gene which is operably linked to a promoter and a 3' untranslated region of a gene that is expressed in the *C. elegans* germline; and

c. expressing the transposase, such that the transposase integrates as a single copy into a *C. elegans* chromosome.

48. The method of Claim 47, wherein the heterologous DNA sequence comprises a bacterial plasmid DNA sequence.

49. The method of Claim 47, wherein the gene carried on the transposon is useful for selection or screening purposes.

50. The method of Claim 47, wherein the transposon contains FRT/FLP recombination sites.

51. The method of Claim 47, wherein the promoter is inducible.

52. The method of Claim 47, wherein the promoter comprises a heat-shock promoter.

53. The method of Claim 47, wherein all bacterial plasmid sequences have been removed from the construct.

54. The method of Claim 47, wherein the construct is substantially free of repeated DNA sequences.

55. The method of Claim 47, wherein the 3' untranslated region comprises a *glh-2* 3' untranslated region.

56. The method of Claim 47, wherein the promoter comprises a *glh-2* promoter.